SOV/86-59-1-23/39

AUTHOR: Mel'nikov, N.Ye., Engr Lt Col

TITLE: The Preflight Checking of Aircraft for Sorties (Kontrol' podgotovki samoletov k vyletu). 1. On the Inspection of Aviation Materiel (1. Na osmotrakh aviatsionnoy tekhniki)

PERIODICAL: Vestnik vozdushnogo flota, 1959, Nr 1, pp 58-62 (USSR)

ABSTRACT: The article describes in general terms the preparation and care of aviation equipment in a bomber unit. In this particular unit, when the aircraft are prepared for flight, all equipment is carefully checked and tested. For this purpose a variety of inspection and measuring devices, instruments, portable lamps, and magnifying glasses are used. Particular attention is paid to landing gear and to the tightness of hydraulic, fuel, and lubrication systems, as well as to the control system of the aircraft.

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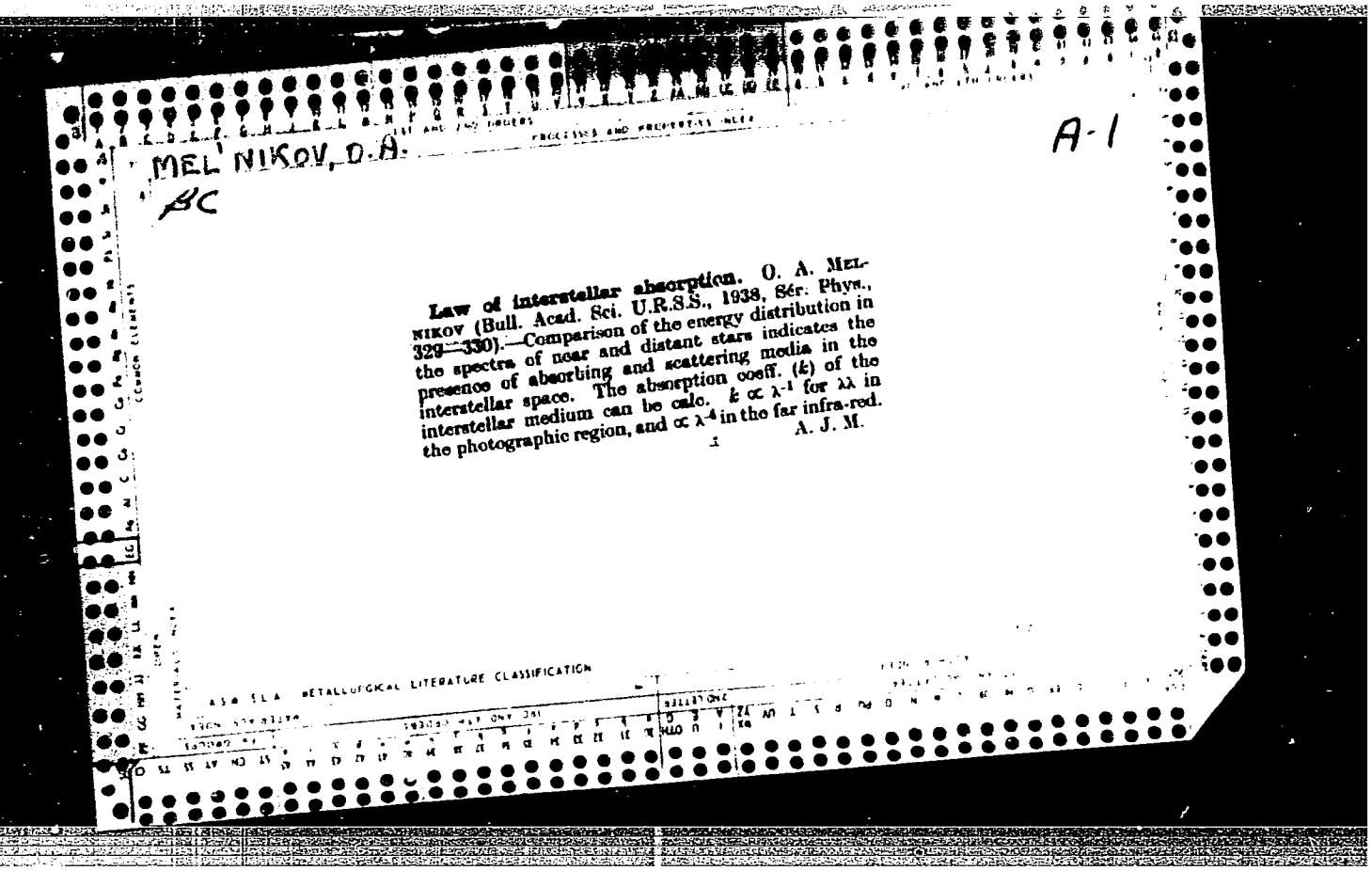
The Preflight Checking (Cont.)

An aircraft is considered ready for duty when the post-flight inspection has been made. All defects discovered are eliminated; the aircraft is refueled; and a thorough check is made by engineers and supervisors of maintenance groups. After a specified number of flying hours, periodical inspections are made. The extent of the periodical inspection is determined by the flight engineer, who judges on the basis of his experience and the requirements set down in manuals and instructions. Periodically so-called complex inspections are also carried out. At these times simultaneous inspections are made of the airframe and adjoining equipment, the engine mount, radio, and other equipment. In this complex inspection engineers of all services participate. In the author's unit much attention is paid to preventive maintenance. In order to do this, a preliminary list of all operations to be carried out is made. This is discussed with technical personnel, and a

The Preflight Checking (Cont.)

general plan is formulated. All work then is done in strict observance of the regulations. The specialists in the author's unit inspect and prepare the bombers for flight with written instructions at hand. There is one photo.

Card 3/3



MEL'NIKOV, O.A.

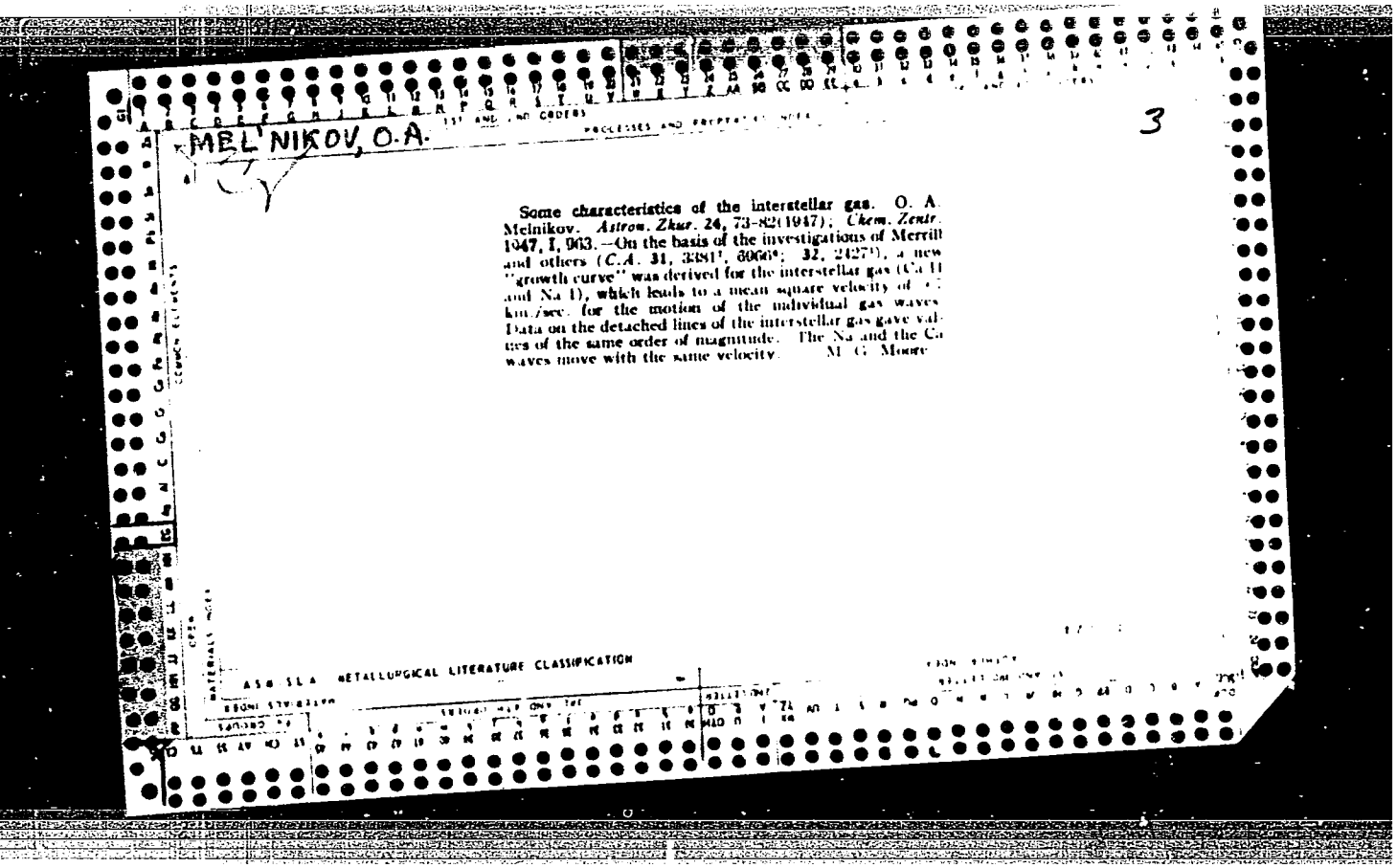
BC

A-1

Law of interstellar absorption. O. A. MEL'NIKOV (Bull. Acad. Sci. U.R.S.S., 1938, Sér. Phys., 329—330).—Comparison of the energy distribution in the spectra of near and distant stars indicates the presence of absorbing and scattering media in the interstellar space. The absorption coeff. (k) of the interstellar medium can be calc. $k \propto \lambda^{-1}$ for $\lambda\lambda$ in the photographic region, and $\propto \lambda^{-4}$ in the far infra-red.

A. J. M.

METALLURGICAL LITERATURE CLASSIFICATION



MEL'NIKOV, O.A.

3

Some characteristics of the interstellar gas. O. A. Melnikov. *Astron. Zhur.* 24, 73-82(1947); *Chem. Zentr.* 1947, I, 963.—On the basis of the investigations of Merrill and others (*C.A.* 31, 3381[1], 8066[6]; 32, 2427[9]), a new "growth curve" was derived for the interstellar gas (Ca II and Na I), which leads to a mean square velocity of [illegible] km./sec. for the motion of the individual gas waves. Data on the detached lines of the interstellar gas gave values of the same order of magnitude. The Na and the Ca waves move with the same velocity. M. G. Moore

ASTIA METALLURGICAL LITERATURE CLASSIFICATION

MEL'NIKOV, O. A.

Mel'nikov, O. A. - "Comparative studies of the spectra of the chromospheres of two solar eclipses (21 September 1941 and 9 July 1954), Izvestiya Glav. astron. observatorii v Pulkove, Vol. XVIII, 1, No. 142, 1949, p. 39-46.

SO: U-411, 17 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 20, 1949).

MEL'NIKOV, O. A.

Mel'nikov, O. A. - "A new determination of the temperature of the cause of the turning layer of the Sun", Izvestiya Glav. astron. observatorii v Pulkove, Vol. XVIII, 1, No. 142, 1949, p. 47-55, - Bibliog: 10 items.

SO: U-411, 17 July 53, (Letopis 'Zhurnal 'nykh Statey, No. 20, 1949).

1. MEL'NIKOV, O.A.: IOANNISYANI, B.K.

2. USSR (600)

4. Spectrum, Ultraviolet

7. New telescope with apertureless spectrograph for the ultraviolet region and results of testing it at high altitudes. Izv. Glav. astron. obs. 18. no. 6. 1951.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

MEL'NIKOV, O.A.

Spectrophotometry of α Cygni. Uch.zap.Len.un. no.153:80-104 '52.
(MLRA 8:6)

(Stars--Spectra) (Spectrophotometry)

MEL'NIKOV, O.A.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 2 Feb - 3 Apr 1954)

Name	Title of work	Nominated by
Mel'nikov, O.A. Kuprevich, N.F.)	Works on the spectrophotometry of stars and the photoelectric registration of stellar spectra	Main Astronomical Observatory, Academy of Sciences USSR

SO: W-30604, 7 July 1954

MELNIKOV, O. A.

USSR/Astronomy - Conferences, International

Sep/Oct 53

"International Astronomical Conferences in 1953," P. G. Kulikovkiy

Astron Zhur, Vol 30, No 5, pp 566-571

A conference was held in Groningen (Holland) end of June, devoted to problems of galaxies. USSR delegates, headed by Acad Prof V. A. Ambartsumyan, were Prof B. V. Kukarkin, Acad O. A. Melnikov, Prof P. P. Parenago, and Docent P. G. Kulikovkiy. Scientific reports of participants are mentioned with emphasis on Soviet achievements. After this conference the Soviet delegates spent a few days in Paris for a conference on astrophysics. They conclude that the lack of decisions at both conferences is due to the faulty administration in capitalistic countries.

264T75

MEL'NIKOV, O. A.

USSR/Astronomy - Historical Review Nov/Dec 53

"Priority of National Astrospectroscopy," O.A. Mel'nikov, Main Astron Observ, Acad Sci USSR

Astron Zhur, Vol 30, No 6, pp 658-661

Reviews history of Russian astrophysics, mentioning first steps in study of spectrum of northern lights (O.V. Struve: Beobachtung des Nordlichtspectrum, Izv Peterb Ak Nauk, 13, 49 [1869]), spectrum of Saturn's ring (1895) and selective interstellar absorption (1847). Rec 31 Aug 53.

273T79

MEL'NIKOV, O.A.

BELOPOL'SKIY, Aristarkh Apollonovich, 1854-1934; MEL'NIKOV, O.A.; SAMSONENKO, L.V., redaktor; NEGRIMOVSKAYA, R.A., tekhnicheskiy redaktor

[Astronomical works. Scientific and biographical sketch and commentary by O.A.Mel'nikov] Astronomicheskie trudy. Nauchno-biograficheskii ocherk i kommentarii O.A.Mel'nikova. Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1954. 319 p. (MLRA 8:3)
(Astronomy) (Belopol'skii, Aristarkh Apollonovich, 1854-1934)

MEL'NIKOV, O. A.

AID P - 374

Subject : USSR/Astronomy

Card 1/2 Pub. 8 - 4/12

Author : Mel'nikov, O. A.

Title : Some Results of the Spectrophotometry of Type A Stars

Periodical : Astron. zhur., v. 31, 3, 249-258, My-Je 1954

Abstract : As a result of spectrophotometry of 66 stars of A type, different physical characteristics of their atmospheres have been obtained. These include: electronic pressure; effective, atmospheric and photospheric accelerations; and thickness of similar stellar atmospheres. Atmospheric thickness and accelerations, as well as the other properties, agree well with the absolute sizes of the stars. It is demonstrated that the very large atmospheres of the supergiants cannot explain the small accelerations observed, the pressure of light playing an important part. It is further demonstrated that the wide wings of the first Lyman (hydrogen) spectral line can distort the continuous spectrum of stars beyond the Balmer series.

AID P - 374

Astron. zhur., v. 31, 3, 249-258, My-Je 1954

Card 2/2 Pub. 8 - 4/12

9 graphs, 4 tables, 17 references, of which 11 are Russian (after 1939).

Institution : Main Astronomical Observatory of the Academy of Sciences of the U.S.S.R.

Submitted : January 13, 1954

MEL'NIKOV, O. A.

AID P - 375

Subject : USSR/Astronomy

Card 1/2 Pub. 8 - 5/12

Author : Mel'nikov, O. A.

Title : Maxima in the Intensities of Hydrogen Lines and the Temperatures of Type A Stars

Periodical : Astron. zhur., v. 31, 3, 259-263, My-Je 1954

Abstract : It is demonstrated that the maxima of hydrogen lines are observed for stars of main sequence in the vicinity of A_2 types. The presence of this maximum in hydrogen lines H_γ and H_δ was obtained from data of 51 stars of main sequence and 6 supergiants, and these data determine the 9000° ionization temperature for these stars. In this new method the assumption of any value of the electronic density in the atmosphere was unnecessary, since it could be obtained from direct observations on the number of the last hydrogen line. The correlations of the quantum number of the last line and the electronic density, on one side, with the absolute value, on the other, were deducted.

MEL'NIKOV, O.A.

Zero-point of spectrophotometric gradients of stars [with summary in French]. Per.zvezdy 10 no.6:382-389 Jl '55.
(MLRA 10:2)

1. Glavnaya astronomicheskaya observatoriya AN SSSR, Pulkovo.
(Stars, Variable) (Stars--Temperature)
(Spectrophotometry)

MEL'NIKOV, O.A.; ZHURAVLEV, S.V.

Spectrophotometry of selected absorption lines in the spectrum of sun spots. Vest.Len.un. 10 no.8:87-95 Ag. '55. (MLRA 9:1)
(Spectrophotometry) (Sun--Spectra)

MEL'NIKOV, O.A., doktor fiziko-matematicheskikh nauk, professor (Pulkovo)

In interstellar spaces. Nauka i zhizn' 22 no.11:41-44 N '55.
(Stars--Observations) (MLRA 9:1)

MEL'NIKOV, O.A. (Pulkovo)

Making a more exact scale of spectrophotometric gradients and star temperatures for the Cepheids. Astron.tsir. no.161:14-16 J1'55.
(Stars, Variable) (MLRA 8:12)

MEL'NIKOV, O.A.

Scale of spectrophotometric gradients and temperatures of stars. Izv.Krym.astrofiz.obser. 16:238 '56.
(MIRA 13:4)

1. Glavnaya astronomicheskaya observatoriya AN SSSR.
(Stars--Temperatures)

MEL'NIKOV, O.A.; ZHURAVLEV, S.S.

Spectrophotometry of faculae in active areas in 1955. Vest. Len. un. 11 no.13:124-133 '56. (MLRA 9:10)

(Spectrophotometry) (Sun--Faculae)

MEL'NIKOV, O.A.

Obtaining absolute spectrophotometric gradient of stars derived from observations of long-period Cepheids. Izv.GAO 20 no.3:75-86 '56. (MIRA 13:5)
(Stars, Variable)

MEL'NIKOV, O.A.; MIKHEL'SON, N.N.

Astronomical instrument building (meeting in Pulkovo). Vest.AN SSSR 26 no.5:94-96 My '56. (MLRA 9:8)
(Astronomical instruments)

MEL'NIKOV, O.A.

Corrections for refractions to be used for stars of different colors. Astron.zhur. 33 no.2:266-273 Mr-Ap '56. (MLRA 9:8)

1. Glavnaya astronomicheskaya observatoriya Akademii nauk SSSR.
(Refraction, Astronomical) (Stars--Color)

MEL'NIKOV, OA

USSR/Optics - General Problems. K-1

Abs Jour : Referat Zhur - Fizika, No 3, 1957, 7581

Author : Mel'nikov, O.A., Mikhel'son, N.N.
Inst :
Title : Pulkovo Conference on Astronomical Instrument Building.

Orig Pub : Astronom. zh., 1956, 33, No 3, 460-463

Abstract : Report of a conference held on 10 -- 12 February 1956, in Pulkovo.

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MEL'NIKOV, O.A.; KUPREVICH, N.F.

Using the photoelectric method for a new determination of the zero point of spectrophotometric gradients and stellar temperatures[with summary in English]. Astron.zhur.33 no.6:845-849 N-D '56.
(MLRA 10:1)

1. Glavnaya astronomicheskaya observatoriya Akademii nauk SSSR.
(Photoelectricity) (Spectrophotometry) (Stars--Temperature)

MEL'NIKOV, O.A.

Precise corrections for chromatic refraction. Astron.tsirk. no.167: 8-10 F '56. (Refraction, Astronomical) (MLRA 9:9)

MELNIKOV, O. A.

3(1) PHASE I BOOK EXPLOITATION SOV/1379

Istoriko-astronomicheskiye issledovaniya, vyp. 3 (Studies in the History of Astronomy, Nr 3) Moscow, Gostekhizdat, 1957. 706 p. 2,000 copies printed.

Resp. Ed.: Kulikovskiy, P.G., Docent; Eds.: Rakhlin, I.Ye. and Reznikovskiy, P.T.; Tech. Ed.: Akhlamov, S.N.; Editorial Board of Series: Vorontsov-Vel'yaminov, B.A., Professor, Kukarkin, B.V., Professor, Kulikovskiy, P.G., Docent (Chairman, Committee of the History of Astronomy, Astronomical Council, USSR Academy of Sciences) and Perel', Yu.G. (Scientific Secretary, Committee on the History of Astronomy, Astronomical Council, USSR Academy of Sciences)

PURPOSE: This book is intended for both the specialist and the general reader interested in the development of astronomy in Russia.

COVERAGE: This volume, a collection of articles by different authors, is the third in a series on the history of the development of astronomy in Russia. Volume 3 deals with the development of the astronomical sciences in the USSR from earliest times to the present day. The articles describe such early observatories as the first astronomical observatory of the St. Petersburg Academy of Sciences

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and those founded in Central Asia in the XIII century; they further describe the life and contributions of such outstanding Russian astronomers as A.D. Krasil'nikov, S.K. Kostinskiy, G.A. Shayn, N.A. Tachalov, S.P. Glazenap, and I.M. Rabinovich. One of the more important articles, by Prof. O.A. Mel'nikov, Soviet astrophysicist, treats the development of astrospectroscopy in pre-revolutionary and modern Russia. The editorial staff expresses its thanks to G.A. Tikhov, Corresponding Member of the AN SSSR, Professors P.M. Gorshkov, N.N. Neuymina, Ye.S. Berezanskaya and N.M. Shtaude for their suggestions and assistance in reviewing the material. The articles are accompanied by numerous photographs, diagrams, and extensive bibliographies.

TABLE OF CONTENTS:

MEL'NIKOV O.A.

AUTHOR: Mel'nikov, O.A., Professor 26-10-2/44

TITLE: The Interstellar Medium (Mezhzvezdnaya sreda)

PERIODICAL: Priroda, October 1957, No 10, pp 11-22 (USSR)

ABSTRACT: At the beginning of the 18th century scientists had already noted that in spite of the immense number of stars, the sky did not show the brilliance that could be expected. This fact led to the theory that interstellar media reduced the light of the stars. Astronomers discovered that such media were gases of various chemical elements; dust particles originating from disintegrated celestial bodies and "cosmic granules" which are molecules under the influence of condensation or chemical reaction. Clouds originating from such gases and particles absorb part of the light of the stars or make them hardly visible. They are found along the equator and the Milky Way as they are influenced by magnetic fields. The article contains 4 photos and 1 diagram.

ASSOCIATION: Main Astronomical Observatory of the USSR Academy of Sciences, Pulkovo (Glavnaya astronomicheskaya observatoriya akademii nauk SSSR (Pulkovo))

AVAILABLE: Library of Congress

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MEL'NIKOV, O.A.

Atmospheric dispersion and chromatic refraction. Izv.GAO
20 no.4:1-32 '57. (MIRA 13:4)
(Refraction, Astronomical) (Dispersion)

26-58-7-17/46

AUTHOR: Mel nikov, O.A., Professor

TITLE: Continuous Spectra of "Radiostars" (Nepreryvnyye spektry "radio-zvezd")

PERIODICAL: Priroda, 1958, Nr 7, pp 84-85 (USSR)

ABSTRACT: The wave ranges from 1 cm to 10 m or the frequencies from $3 \cdot 10^{10}$ to $3 \cdot 10^{7}$ cycles expresses the nature of radio-radiation and the classification of radiostars. In absolute photometry of the spectrum there occur great practical difficulties connected with the necessity of an accurate determination of the coefficient of the directional action of the antenna equipment and calibration, i.e. the standardization of the sensibility of the receiving equipment. Therefore, a different and easier method was adopted, the so-called method of relative measurings, relative to a sufficiently bright object in the radio beams. The energy distribution in the spectrum of objects to be measured is compared with the well-known distribution of energy in the spectrum of Cassiopeia A. By this method the energy distribution in continuous spectra of more than 30 radiostars could soon be established. Many radio sources have been identified with well-known objects by aid of radiotelescopes

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and optical telescopes. They are divided into 3 groups: galactical radio sources (x = -0.74), outer-galactical sources (x = -1.05) and unidentified sources (x = -1.21). This shows that the radiation of the majority of radio sources within the radio range is not the radiation of a dark or grey body but reflects a continuous emission of a not yet quite enigmatic nature.

There is 1 diagram and 5 references, 2 of which are English and 3 Soviet.

ASSOCIATION: Glavnaya astronomicheskaya observatoriya AN SSSR - Pulkovo (The Main Astronomical Observatory of the AS USSR - Pulkovo)

1. Radio stars--Spectra 2. Photometrics--Applications

3(1)

AUTHOR: Mel'nikov, O.A. SOV/22-11-5-4/9

TITLE: Hundred Years of Astrospectroscopy (K stoletiyu astrospektroskopii)

PERIODICAL: Izvestiya Akademii nauk Armyanskoy SSR, Seriya fiziko-matematicheskikh nauk, 1958, Vol 11, Nr 5, pp 51 - 70 (USSR)

ABSTRACT: The paper contains an interesting description of the historical development of astrospectroscopy with a considerably objective judgement of the western contributions. The following Soviet personalities are mentioned :

1.) Sitnik, G.F. and Makarova, Ye.L. : Energy Distribution in the Solar Spectrum, 1955 - 57

2.) Gnevyshev, M.N., Fesenkov, V.G. and Karimov, M.G. : Solar Influence on Terrestrial Processes. Observatories at Kislovodsk, Alma-Ata; furthermore at Abastumani, L'vov, Tashkent, Khar'kov

3.) Dobychin, P.V., Engineer, Severnyy, A.V. and Krat, V.A. : Construction of the Solar Telescopes on the Crimea and in Pulkovo.

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4.) Abartsumyan, V.A., Kozyrev, N.A. and Mustel', E.R. : Observations of the Sun.

5.) Vorontsov-Vel'yaminov, B.A., and Ivanovskaya, V.I. : Classifications of Stars.

6.) Struve, O.L., and Shayn, G.A. : Spectral Determination of the Rotation of Axes of Different Stars, 1929.

7.) Mel'nikov, O.A.; 1949 : Motions of the Interstellar Gas Clouds.

8.) Belopol'skiy, A.A. : Double Stars.

9.) Al'bitskiy, V.A. and Shayn, G.A. : Catalogues of Stars.

10.) Mirzoyan, L.V. and Ivanova, N.L. : Expeditions into the High Mountain-Chain for Spectroscopic Investigations.

11.) Pikel'ner, S.B. (Krym), Gurzadyan, G.A. (Byurakan) and Pariyskiy, N.N. : Establishment of "Nebular" Spectrographs.

12.) Tikhov, G.A., Barabashev, N.P. and Kozyrev, N.A. :

Hundred Years of Astrospectroscopy SOV/22-11-5-4/9

Planet Spectra.

13.) Bredikhin, F.A., Belopol'skiy A.A., Shayn G.A., Orlov, S.V., Vsekhsvyatskiy, S.K., and Shul'man, V.S. : Comet Spectra.

14.) Fesenkov, V.G., Krat, V.A., Dugin, P.I., Sevastyanova M.V., Kucherova V.N., Sokolova V.S., Sytinskaya N.N., Kotova, E.N., Megrelishvili, T.G., Nikonov, V.B., and Pyaskovskaya-Fesenkova, Ye.V. : Theoretical Publications.

15.) Zhuravlev, S.S., Lebedinskiy, I.I., Mironov A.V., Shefov, N.I., Bagaretskiy, B.A., Gal'perin, Yu.I., and Krasovskiy, V.I. : Spectra of Aurora Borealis.

16.) Others : Shklovskiy, I.S., Karimov, M.G., Koryagina, Z.V., El'vi, K.T., Radnik, P., Kondrat'yev, V.N., and Gordon, I.M.

17.) In Pulkovo and on the Crimea near Bakhchisaray new spectroscopic laboratories are built.

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Hundred Years of Astrospectroscopy SOV/22-11-5-4/9

ASSOCIATION: Glavnaya astronomicheskaya observatoriya AN SSSR (Main Astronomical Observatory AS USSR)

SUBMITTED: August 28, 1958

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SOV-26-58-11-15/49

AUTHORS: Mel'nikov, O.A., Professor, Popov, V.S. (Leningrad, Pulkovo)

TITLE: The Spectra of Non-Stationary Stars (O spektrakh nestatsionarnykh zvezd)

PERIODICAL: Priroda, 1958, Nr 11, pp 83 - 84 (USSR)

ABSTRACT: Tentative explanations of the nature of the energy radiated by continuous emission in the spectra of non-stationary stars are given by foreign astronomers and the two Soviet scientists L.V. Mirzoyan and V.A. Ambartsumyan. Mirzoyan holds that the true nature of the non-thermal emission has not yet been discovered. Ambartsumyan thinks that this emission starts in the upper atmospheric layers by way of "discrete" portions of energy that came from the deep layers of the star and were transformed into optical radiation. There is 1 graph and 7 references; 1 of which is English, 2 German and 4 Soviet.

1. Stars--Spectra

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MEL'NIKOV, O.A.

Zero point of the period-luminosity curve for type 1 long period Cepheids of the flat subsystem. Per.zvezdy 12 no.5:320-327 N '58. (MIRA 13:9)

1. Glavnaya astronomicheskaya observatoriya AN SSSR.
(Cepheids)

MEL'NIKOV, O.A.

Fedor Aleksandrovich Bredikhin; on the occasion of the 125th anniversary of his birth. Izv.GAO 20 no.6:1-27 '58. (MIRA 13:4)

(Bredikhin, Fedor Aleksandrovich, 1831-1904)

MEL'NIKOV, O.A.;

Comparing measured and calculated intensities of iron multiplets [with summary in English]. Izv.GAO 20 no.6:28-43 '58. (MIRA 13:4)

(Electric discharges) (Iron--Spectra) (Cosmic physics)

SOV/35-59-9-7005

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1959, Nr 9, p 18 (USSR)

AUTHORS: Mel'nikov, O.A., Mitrofanova, L.A.

TITLE: On the Calibration of Spectrograms According to the Iron Comparison Spectrum at Medium Dispersions of the Spectrographs.

PERIODICAL: Izv. Gl. astron. observ. v Pulkove, 1958, Vol 20, Nr 6, pp 44 - 51 (Engl. résumé)

ABSTRACT: The authors examine the question on the calibration of spectrograms according to the iron comparison spectrum, and in particular, the method suggested by Hogg, of plotting a characteristic curve of the (photo) plate by the relative theoretic intensities of the lines of iron multiplets. For the same (photo) plate the characteristic curves were plotted by three methods: by that of Hogg, by the experimental intensities of iron lines, and with the aid of the marks of a stepped slit. From the correlation of these curves, the authors conclude that Hogg's method is insufficiently accurate. By virtue of the small range of intensities within the multiplets, the characteristic curve is compiled by separate, small sections. A new method is recommended for calibrating the spectrograms,

On the Calibration of Spectrograms According to the Iron Comparison Spectrum at Medium Dispersions of the Spectrographs

by the laboratory values of the intensities of the lines. For this, Crosswhite's numerous photoelectric measurements were used, providing a large number of lines, which can be used in calibration. The comparative processing of plates which was carried out has shown a better agreement. A table is given which allows the selection of the least number of lines necessary for the even plotting of the characteristic curve for a given spectrograph of medium dispersion. Bibl. 8 titles.

K.I. Nikol'skaya

Mel'nikov, O. A.

AUTHOR: Mel'nikov, O. A., Doctor of Physical and Mathematical Sciences 30-1-9/39

TITLE: The Building of Astronomical Devices in the Soviet Union (Sovetskoye astronomicheskoye priborostroyeniye)

PERIODICAL: Vestnik AN SSSR, 1953, Vol. 23, Nr 1, pp. 54-59 (USSR)

ABSTRACT: A short survey is given of the results obtained in this field. A 40 cm "anaberration" - telescope was manufactured in 1946 for the observatory of Byurakan, and in 1950 70 cm reflecting telescopes, equatorially mounted, were produced for the Astronomical Institute imeni P. K. Shternberg at Moscow (Astronomicheskiy institut imeni P. K. Shternberga, Moskva) and for the Observatory of the AN Ukrainian SSR at Kiyev (observatorii Akademii nauk USSR v Kiyeve) under the supervision of P. V. Dobychin. For the same institute, as well as for the Observatories of Pulkovo and Byurakan 25 cm parabolic reflectors with quartz spectrographs of the system O. A. Mel'nikov and the construction by P. V. Ioannisiani were manufactured. In the years 1939 - 1941 N. T. Poromarev worked on the problem of the production of large astro-disks for astronomical mirrors, on which occasion samples of high

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quality with a diameter of up to 1 m were produced. Later, D. D. Maksutov improved the construction of the mirrors as well as their finish. Within short a large reflecting telescope will be ready for use at the observatory in the Crimea, (2,5 m); it will be nearly fully automatized. A 32 cm photographic 2-lens achromat was produced, which was ground by the optician M. A. Stepanov under the supervision of D. D. Maksutov. Most probably this objective will be coupled with the 70 cm objective of Pulkov. This double astrograph will be the largest of its kind in the world. In Soviet Russia two new systems of reflector lens telescopes were produced, viz. the meniscus-system by D. D. Maksutov and the system A. G. Slyusarev. For the research expeditions a series of 20 cm meniscus telescopes was produced. Great success was achieved by the production of the special telescopes by B. K. Ioannisiani for the observation of nebulae spectra. Under the supervision of P. V. Dobychin and by order of A. B. Severskiy a tower-sun-telescope was produced. At present a star interferometer as well as an interference heliometer, system V. P. Linnik are being introduced at Pulkovo. Soviet optical-mechanic l industry supplied the observatories and astronomers with the

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The Building of Astronomical Devices in the Soviet Union 30-1-13/3

following devices: Objective, self-recording microphotometers, measuring devices for spectra and star photography, spectra photometers, spectro-dilators, level testers, quartz-, ato-, and molecular clocks, computers, various spectrographs, radiation receivers, etc. The following tasks are mentioned to be performed in the future: the development and production of new giant telescopes, the development of complete small gabarit radiation receivers, the development of new methods of recording the radiation of celestial bodies, and creation of better and fully automatized various laboratory devices (Measuring devices). There are 2 figures.

AVAILABLE: Library of Congress

1. Astronomy-Instrumentation

Card 3/3

3(1)
AUTHOR: Mel'nikov, O.A. SOV/33-35-2-4/21

TITLE: The Calibration of the Scale of Gradient (Spectrophotometric) Stellar Temperatures by Reference to the Sun (O kalibrovke shkaly gradiyentnykh (spektrofotometricheskikh) temperatur zvezd privyazkoy k solntsu)

PERIODICAL: Astronomicheskiy zhurnal, 1958, Vol 35, Nr 2, pp 218-221 (USSR)

ABSTRACT: Basing on the observations of Abbot reduced by Minnaert with the scale correction 2.4% for the absolute spectrophotometric gradient of the whole Sun one obtains the value 2.44. Since the star 85 Pegasi is analogous to the Sun ($G2V+4^{M}.73$), this gradient was adopted for 85 Pegasi. Using the six-colour photometric [illegible] Stebbins and other authors, for the relative gradient (the mean for two stars of the type A0 relative to G2V) one obtains the value -1.29 and therefore for A0 stars: $\Phi(A0) = 1.15$ for $\overline{\lambda}$ [illegible] .5705 and $T(A0) = 15600^{\circ}$ K. A com-

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The Calibration of the Scale of Gradient (Spectrophotometric) Stellar Temperatures by Reference to the Sun

SOV/33-35-2-4/21

parison of the obtained values with those of Kienle [Ref 10] and Mel'nikov [Ref 9] shows a good agreement.
There is 1 figure, and 10 references, 2 of which are Soviet, 3 German, 3 American, 1 Dutch, and 1 French.

ASSOCIATION: Glavnaya astronomicheskaya observatoriya Akademii nauk SSSR (Main Astronomical bservatory of the AS USSR)

SUBMITTED: November 25, 1957

Card 2/2

MEL'NIKOV, O.A.; KOLCHINSKIY, I.G.

Conference on the scintillation of stars and the propagation of waves in media having random nonuniformities. Astron.zhur. 35 no.5:819-822 S-O '58. (MIRA 11:11)
(Stars--Scintillation) (Atmospheric transparency)

MEL'NIKOV, O.A.

New formula for calculating the selective light absorption in the Galaxy. Astron.tsir. no.198:4-6 D '58. (MIRA 12:7)

1. Gosudarstvennaya astronomicheskaya observatoriya AN SSSR.
(Absorption of light) (Astrophysics)

MEL'NIKOV, O.A.; ZHURAVLEV, S.S.

Spectrophotometry of H_α and H_β of solar prominences. Uch.zap.LGU no.273:70-119 '58. (MIRA 12:1)
(Sun--Prominences--Spectra)

MEL'NIKOV, O.A., prof., otv.red.; OBUKHOV, A.M., red.; KOLCHANSKIY, I.G., kand.fiz.-mat.nauk,red; KUCHEROV, N.I., kand.fiz.-mat. nauk, red.; BYSTROVA, N.V., kand.fiz.-mat.nauk, red.; KALLISTRATOVA, M.A., red.; ZHUKOVA, L.N., red.; ZENDEL', M.Ye., tekhn.red.

[Transactions of the Conference on the Study of the Scintillation of Stars] Trudy Soveshchaniia po issledovaniiu mertsaniia zvezd. Moscow, Izd-vo Akad.nauk SSSR, 1959. 263 p. (MIRA 13:1)

1. Soveshchaniye po issledovaniyu mertsaniya zvezd. Moscow, 1958. 2. Chlen-korrespondent AN SSSR (for Obukhov).
(Stars--Scintillation--Congresses)

84846
S/035/60/000/008/005/007
A001/A001

3.1800 (1041, 1062, 1168)

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1960, No. 8, p. 68, # 7788

AUTHORS: Mel'nikov, O. A., Zhuravlev, S. S.

TITLE: On Methods of Studying Hydrogen Lines in Solar Prominence Spectra

PERIODICAL: Solnechnyye dannyye, 1959, No. 4, pp. 75-79

TEXT: The method of studying Doppler widths $\Delta\lambda_D$ in prominences, which was proposed earlier, is applied to a particular case of a prominence spectrum observed at the Astronomicheskaya observatoriya (Astronomical Observatory) of LGU in 1955. The method is based on the comparison of experimental values of lg (w/λ) for a certain pair of lines observed in different spots of a prominence with the theoretical growth curve. The growth curve was drawn for the case of a Doppler widening of lines. It was found, on the average, from the lines Hα, Hβ and Hγ, that $\Delta\lambda_D/\lambda = 5.00 \times 10^{-5}$, which corresponds to a speed characteristic for microturbulence, $U_m = 15$ km/sec. Some deviation of experimental points from the theoretical curve is interpreted as an indication of the Stark effect of line

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84846

S/035/60/000/008/005/007
A001/A001

On Methods of Studying Hydrogen Lines in Solar Prominence Spectra

widening. The application of the method of Struve and Khuan Shou-shu (RZhAstr, 1956, No. 3, 1741) made it possible to determine a speed characterizing macro-turbulence, U_M = 9.7 km/sec. The values obtained, U_m and U_M, are also confirmed by the comparison of experimental values of the quantities lg (w/λ) and lg $\Delta\lambda/\lambda$ for the line H_γ with the theoretical curve. There are 8 references.

G. S. Ivanov-Kholodnyy

Translator's note: This is the full translation of the original Russian abstract.

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3(1) SOV/26-59-6-15/51

AUTHOR: Mel'nikov O.A., Professor

TITLE: Investigations of the Ultraviolet Solar Spectrum

PERIODICAL: Priroda, 1959, Nr 6, pp 75-78(USSR)

ABSTRACT: The author gives a historical survey of the investigations (mostly American) concerned with the study of the ultraviolet solar spectrum. He sets forth the results obtained with the aid of rocket type V-2 started in 1956, rocket type "Aerobee" launched on 21 February 1955, rocket type "Aerobee-Hi" launched on 6 August 1957 and rocket type "Aerobee-Hi" launched on 4 June 1958. He also mentions the research carried out by V.A.Rense and O.L.Struve. Only towards the end of the article, does the author give a short summary of Soviet research. In 1958 V.P.Kachalov, N.A. Pavlenko and A.V. Yakovleva published the results of the study of a solar spectrum within the range of 2,471-2,635Å obtained on 31 May 1956 at a height of

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SOV/26-59-6-15/51

Investigations of the Ultraviolet Solar Spectrum

100 km with the aid of a diffraction spectrograph (concave lattice). Within this range is a resonance absorption doubled Mg II 2,795.5 and 2,802.7Å . in the centre of which radiation lines can be observed According to G.S.Ivanov-Kholodnyy, who studied these lines, this radiation originates in the chromosphere at a depth, with an optical thickness ≈ 4 and apparently does not depend on a phase of the solar cycle There are 2 diagrams, 1 photograph (spectrogram) and 11 references, 9 of which are English and 2 Soviet.

ASSOCIATION: Glavnaya astronomicheskaya observatoriya Akademii nauk SSSR, Pulkovo (Main Astronomical Observatory of the Academy of Sciences USSR, Pulkovo)

Card 2/2

MEL'NIKOV, O.A.

Joseph Fraunhofer, 1787-1826. Trudy Inst. ist. est. i tekh. 22: 114-131 '59. (MIRA 12:10)
(Fraunhofer, Josesph, 1787-1826)

3(1)

AUTHOR: Mel'nikov, O.A. SOV/33-36-3-1/29

TITLE: On the Intensities of Quadrupole Multiplet Lines of Ionized Iron

PERIODICAL: Astronomicheskiy zhurnal, 1959, Vol 36, Nr 3, pp 385-393 (USSR)

ABSTRACT: The author considers the quadrupole multiplets [Fe II] Nr 7 F and 21 F appearing in the spectra of η Carinae and XX Ophiuchi, which correspond to the transitions $3d^6 4sa\,^6D - 3d^5 4s^2 a\,^6S$ and $3d^7\,^4F - 3d^6 4s\,^4G$. The visual estimations of the emission lines are calibrated and the relative intensities of the lines are determined. For Nr 7 F $\lg \frac{I_T}{I_\eta\ Car}$ is almost constant. It is conjectured that the intensities agree with the theory and that they satisfy the sum rule. By calibrating the Ti II lines the excitation temperature in the atmosphere of XX Ophiuchi is estimated; $T \approx 10000^\circ$ K.
There are 5 tables, 6 figures, and 22 references, 1 of which is Soviet, 5 English, 2 German, and 14 American.

ASSOCIATION: Glavnaya astronomicheskaya observatoriya Akademii nauk SSSR (Main Astronomical Observatory of the AS USSR)

SUBMITTED: December 12, 1958

Card 1/1

MEL'NIKOV, Oleg Aleksandrovich, prof.; OGORODNIKOV, K.F., doktor fiziko-matemat.nauk, nauchnyy red.; VASIL'YEV, A.V., red. izd-va; GURDZHIYEVA, A.M., tekhn.red.

[History of the telescope] Istoriia teleskopa. Leningrad, Ob-vo po rasprostraneniiu polit. i nauchn.znanii RSFSR, Leningr. otd-nie, 1960. 50 p. (MIRA 13:11)
(Telescope)

PHASE I BOOK EXPLOITATION SOV/4374

Astronomiya v SSSR za sorok let 1917 - 1957; sbornik statey (Forty Years of Astronomy in the USSR, 1917-1957; Collection of Articles) Moscow, Fizmatgiz, 1960. 728 p. 2,000 copies printed.

Ed.: L. V. Samsonenko; Tech. Ed.: N. A. Tumarkina; Editorial Board: A. A. Mikhaylov (Resp. Ed.), M. S. Zverev, P. G. Kulikovskiy, A. G. Masevich, E. R. Mustel'; V. V. Sobolev, and M. F. Subbotin.

PURPOSE: This book is intended for astronomers, astrophysicists, and others interested in the history of astronomy in the USSR.

COVERAGE: This major work on the history of astronomy in the USSR consists of two parts, review articles and bibliographies. Part I contains a collection of articles on various facets of astronomical research written by leading Soviet specialists in the field. Chief emphasis is placed on developments of the last ten years. The research activities and equipment of 23 Soviet observatories and institutes are described, and the leading scientific personalities of each mentioned. The geographic coordinates and elevations of 41 astronomical centers are listed. Individual articles discuss problems dealing with

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theoretical astronomy, minor planets, comets and meteors, the physics of stellar atmospheres and gaseous nebulae, cosmogony, and radioastronomy. Part II contains a comprehensive bibliography (over 9,500 items) of Soviet astronomical publications from 1917 to 1957. An author index lists some 1,800 astronomers with references to their contributions. The bibliographic part was compiled by N. B. Lavrova, N. D. Petrova, Ya. G. Perel', and T. A. Zalkind.

TABLE OF CONTENTS:

PART I. COLLECTION OF ARTICLES

Card 3/9

MEL'NIKOV, O.A.

Central intensity of absorption lines of the solar spectrum.
Vest. LGU 15 no.19:100-116 '60. (MIRA13:9)
(Spectrum, Solar)

3.1540(1062,1128,1168)

S/043/60/019/004/004/015
C 111/ C 333

AUTHOR: Mel'nikov, O. A.

TITLE: On the Central Intensity of Solar Absorption Lines

PERIODICAL: Vestnik Leningradskogo universiteta, Seriya matematiki, mekhaniki i astronomii, 1960, Vol 19, No.4, pp.100-116

TEXT: The question of the central intensity of solar absorption lines has not yet been solved theoretically. In a special case S. Chandrasekhar (Ref.5) succeeded in setting up the following formula for the residual intensity of the absorption line in the center of the star discus ($\cos\theta = 1$, $\theta = 0$):

$$(1) \quad r(1) = \frac{\Lambda^{3/2}}{1+\varepsilon\eta} \cdot \frac{H(1)}{1+\frac{B^{(0)}}{B^{(1)}}} \left(1 + \frac{1+\varepsilon\eta}{\Lambda} \cdot \frac{B^{(0)}}{B^{(1)}} + \frac{1-\Lambda}{2\sqrt{\Lambda}} \alpha_1\right).$$

Here it is

$$\Lambda \equiv \Lambda_\nu = \frac{x(\nu)+\varepsilon\sigma_\nu}{x(\nu)+\sigma_\nu} = \frac{1+\varepsilon\eta_\nu}{1+\eta_\nu} \; ; \; \eta \equiv \eta_\nu = \frac{\sigma_\nu}{x(\nu)},$$

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84901
S/043/60/019/004/004/015
C 111/ C 333

On the Central Intensity of Solar Absorption Lines

η the ratio of the coefficient of dispersion in the line to the absorption coefficient in the continuous spectrum; $B^{(0)}$ and $B^{(1)}$ are coefficients of the expansion $B(\tau_\nu) = B^{(0)} + B^{(1)}\tau_\nu$; $H(1)$ a function and α_1 its first moment, the numerical values of which are given in (Ref.5).

In the case $\varepsilon = 0$, $B^{(0)}/B^{(1)} = 2/3$ one obtains the result of V. A. Ambartsumyan

$$(2) \quad r(1) = \frac{H(1)}{\sqrt{1+\eta}} \quad ,$$

In general it is $r_\nu = f(\eta_\nu)$ Therefore in the center of the line $r_{\nu_0}(1) \equiv r_0(1) = f(\eta_{\nu_0}) \equiv f(\eta_0) = f[\eta_0 \cdot H(a,0)]$. For $\lambda = 5000$ Å, $T = 5780^\circ$, $A = 50$ one obtains for Fe, Ti, Cr and other elements in the mean $\Delta\lambda_D = 0.023$ Å ($\Delta\lambda_D$ Doppler broadening). Here it is

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On the Central Intensity of Solar Absorption Lines

(4) $\eta = \eta_o H(a,v)$,

where

(5) $H(a,v) = \frac{a}{\pi} \int_{-\infty}^{\infty} e^{-y^2} dy \left[a^2 + (v - y)^2 \right]^{-1}$,

a the half width of the line $\Delta \lambda_N$ or $\Delta \nu_N$ which is caused by absorption. The function (5) is tabulated by E. Hjerting (Ref.7) and D. L. Harris (Ref.8).

The hypothesis of the pure absorption offers another possibility for calculating the residual intensities of the lines; it follows $r_o = \frac{1}{J(\alpha_e, \beta)}$, the function $J(\alpha_e, \beta)$ has been tabulated by Chandrasekhar (Ref.5).

The author investigates the variation of the absorption lines of stars with the aid of the catalogue of C. W. Allen (1934).

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S/043/60/019/004/004/015
C 111/ C 333

On the Central Intensity of Solar Absorption Lines

About 2000 lines has been collected in 12 groups in dependence on equivalent widths. Figure 5 shows the result.

Though the material of observation has been divided into groups with respect to W, in one group it is not $W(\lambda)$ = const, but $W = W(\lambda)$. This dependence is shown in figure 8. The left ordinate refers to metals (W_λ^M), the right one to hydrogen (W_λ^H) The points correspond to single values, the light circles correspond to the mean values.

It results on the whole that it is

(11) $$r_o = \varphi\left[\frac{W(\lambda)}{\lambda}, a\right]$$

The observed behavior of the central intensities must be explained by combination of the scattering - and of the pure absorption conceptions.

L. F. Chmil' is mentioned in the paper The author thanks V. V. Sobolev for references.
There are 12 figures, 5 tables, and 19 references: 3 Soviet, 2 French, 5 English, 5 American, 2 German, 1 Dutch and 1 Australian

Card 1/3

20739
S/035/61/000/008/012/022
A001/A101

24,3200 (1057, 1109, 1395)

AUTHOR: Mel'nikov, O.A.

TITLE: On a new law of selective absorption in the Galaxy

PERIODICAL: Referativnyy zhurnal. Astronomiya i Geodeziya, no. 8, 1961, 40, abstract 8A322 ("Izv. Gl. astron. observ. v Pulkove", 1960, v. 21, no. 4, 119 - 132, English summary)

TEXT: In the formula $K(\lambda) = K_{\lambda} + K_{0}$, which expresses the attenuation of stellar light in space by a dust medium, selective part of attenuation K_{λ} has the form $\varphi(\lambda)/\lambda^{\beta(\lambda)}$. On the basis of observational data, published previously by a number of authors, on color excesses of stars in the spectrum region from 0.3 to 2.1 μ, it is shown that the given form of the attenuation coefficient corresponds to a change of exponent $\beta(\lambda)$ from 0.5 to 3.0 in the same spectrum region. The author proposed (RZhAstr, 1960, no. 11, 11212) a new more convenient semi-empirical formula:

$$K(\lambda) = \frac{K(0)}{1 + K\lambda^{3}} + K_{0}.$$

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28739
S/035/61/000/008/012/022
A001/A101

On a new law of selective absorption in the Galaxy

The checking of applicability of this formula shows that it satisfies observations in wide limits of spectrum at constant values of K (0) and K, which is demonstrated by the figure in which observational data for 4 pairs of stars are compared with the theoretical curve. An analysis of the data of the author and comparison with theoretical calculations of J.L. Greenstein for metallic and dielectric particles show that dielectrics attenuate light most effectively. The new attenuation formula corresponds to distribution of radii of spherical dust particles according to the law: $f(\rho) = Cl^{-\varepsilon\rho^3}$. There are 18 references.

Ye. Kharadze

[Abstracter's note: Complete translation]

Card 2/2

PARSHIN, Igor' Aleksandrovich; MEL'NIKOV, O.A., prof., nauchnyy red.; UDAL'TSOV, O.A., red. izd-va; GURDZHIYEVA, A.M., tekhn. red.

[In the world of the planets] V mire planet. Leningrad, Ob-vo po rasprostraneniiu polit. i nauchn. znanii RSFSR, 1961. 50 p. (MIRA 15:5)

1. Chlen-korrespondent Akademii nauk SSSR (for Mel'nikov).
(Solar system)

29495
S/035/61/000/009/024/036
A001/A101

3,1560
3,1570

AUTHOR: Mel'nikov, O.A.

TITLE: On the relation between the total and selective absorption of light in the Galaxy

PERIODICAL: Referativnyy zhurnal. Astronomiya i Geodeziya, no. 9, 1961, 41, abstract 9A316 ("Izv. Gl. astron. observ. v Pulkove", 1961, v. 22, no. 2, 129 - 138, Engl. summary)

TEXT: It was discovered in the recent years that the γ-coefficient of conversion from selective interstellar absorption to the total one depends on color excess E. On the basis of data of M.A. Vashakidze (RZhAstr, 1953, no. 2, 764), the author finds that

$$\overline{\gamma}_E = 3.4 + 0.33\ (1/\overline{E})$$
$$\pm\ 5 \pm .04$$

where averaging was carried out in groups of objects with close E values. The above-mentioned data contain color excesses of various objects and corresponding total absorptions derived on the basis of counting stars and extragalactic ne-

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1935
S/035/61/000/009/024/036
A001/A101

On the relation between the total ...

bulae. The author concludes that the relation between γ_E and 1/E almost does not depend on the temperature of the objects, it can not be explained by changes in the effective wavelength with reddening of the star which yields a small decrease of γ_E with increasing 1/E. The latter effect is estimated numerically; corresponding tables are presented. The author makes use of the absorption law in the Galaxy, which he brought to a more precise form:

$$A_\lambda = \frac{A(0)}{1 + K\lambda^3} + A_o = A(\lambda) + A_o ,$$

where λ is wavelength. On the basis of the average reddening curve of four star pairs, derived by J. Stebbins and A.E. Whitford, improved by L. Divan, and somewhat corrected by the author, the value K = 7.0 is obtained. It is shown that the author's absorption law agrees satisfactorily with observations. This law corresponds to distribution of particles by diameters of the following form: $N(\rho)/N(0) = e^{-\varepsilon\rho^3}$. The observed relation between γ_E and 1/E can be explained by the influence of the neutral component of absorption A_o, which grows with distance more slowly than $A(\lambda)$. It is simpler to assume that quantity A_o is

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S/035/61/000/009/024/036
A001/A101

On the relation between the total ...

caused by the presence of large particles or free electrons in vicinity of the solar system or even within the latter. The author estimates the value of A_o to be $0^m.1 - 0^m.3$. There are 20 references.

B Fesenko

[Abstracter's note. Complete translation]

Card 3/3

MEL'NIKOV, O.A.; PIKEL'NER, S.B.

"Course of practical ·strophysics" by D.IA.Martynov. Reviewed by O.A.Mel'nikov, S.B.Pikel'ner. Astron.zhur. 38 no.5:1004-1006 S-O '61. (MIRA 14:9)

(Astrophysics)
(Martynov, D. IA.)

AGEKYAN, T.A.; VORONTSOV-VEL'YAMINOV, B.A.; GORBATSKIY, V.G.; DEYCH, A.N.; KRAT, V.A.; MEL'NIKOV, O.A.; SOBOLEV, V.V.; MIKHAYLOV, A.A., otv. red.; KULIKOV, G.S., red.; AKSEL'ROD, I.Sh., tekhn. red.

[Course on astrophysics and stellar astronomy]Kurs astrofiziki i zvezdnoi astronomii. 2. izd. Moskva, Fizmatgiz. Vol.2. [By]T.A. Agekian i dr. 1962. 688 p. (MIRA 16:1)
(Astrophysics) (Stars) (Nebulae)

S/72... 62/95...

AUTHOR: Mel..., ... A.

TITLE: Novel methods ... investigation and ... instrumentation

SOURCE: Trudy Tret... s''yezda Vsesoyuz... astronom... obshchestva, ... Aprelya 1960 g. Moscow. Izdatel... nauk SSSR, 1962 ... 04.

TEXT: A brief state-of-the-... report on astrospect... instrumentation. I. Astrospectroscopy: In the ... State Astronomical Institute imeni Shternberg has ... body model and on the absolute photoelectr... distribution in the continuous spectrum of the sun ... later confirmed ... character of the solar continuum, ... method for the ... developed a new ... Pulkovo scientists ... star spectra with the ... determination of the ... effect of the ...

Card 1/...

Novel methods of astronomical investigation ... S/722/62/000/000/003/009

Line spectra have been recorded photoelectrically by the Pulkovo and Crimean Observatories. Rapid changes in a spectrum can be recorded by this method. It was discovered that the central intensity of the Fraunhofer lines varies with the phase of solar activity, even though the total intensity remains practically constant. The polarimetric method of investigation of the profiles of spectral lines and their shifts has been used to determine the magnetic fields of sun spots (Pulkovo, Crimea). V. A. Dombrovskiy's studies on the polarization of the light of stars are significant in the study of the relative balance of gravitational, solar-pressure, and magnetic fields in the universe. A newly discovered, and not yet fully understood, phenomenon is the nonthermal emission, i. e., continua which do not obey Planck's formula and which, perhaps, are attributable to relativistic electrons which give rise to bremsstrahlen when passing through magnetic fields. II. Astronomical Instrumentation: Latest news are given on recent Soviet equipment, comprising a new 82-cm photographic lense-type refractor telescope, a new 2.6-m reflector telescope with a "spun" (and not welded) rear surface for the Crimean Observatory, a 70-cm reflector telescope with a steel mirror, a 700/1,000-mm meniscus-type telescope, a 1,000-mm Schmidt instrument, new automatic tracking and other control equipment, a Linnik-type stellar interferometer and heliometer, new slitless spectrographs, cameras for the observation and spectroscopy of auroral lights, automatic isophotometers, spectrophotometers, and spectrum expanders. The unfilled need

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Novel methods of astronomical investigation ... S/722/62/000/000/003/00

for an automatic coordinate-measuring machine for astronomic star negatives a
their spectra is stressed, also the desirability of intensive development of fiber-
optical devices. Astronomical observations from free balloons, rockets, and arti-
ficial satellites uncover enormous vistas for the development of astronomy.

ASSOCIATION: None given.

Card 3/3

MEL'NIKOV, O.A., (Leningrad)

Sun flare hunter. Nauka i zhizn' 29 no.5:28-32 My '62.
(MIRA 15:11)

1. Chlen-korrespondent AN SSSR.
(Sun) (Crimea--Astronomical observatories)

MEL'NIKOV, O.A.; ZHURAVLEV, S.S.

Comparative photometric study of the H_α, H_β, and H_γ lines in the spectra of solar prominences. Uch.zap.LGU no.307:111-124 '62. (MIRA 15:9)
(Sun—Prominences)

MEL'NIKOV, O.A., otv. red.; TSVETKOV, N.V., red. izd-va;
KONDRAT'YEVA, M.N., tekhn. red.

[New equipment in astronomy] Novaia tekhnika v astronomii; materialy soveshchaniia... Moskva, 18-20 aprelia 1961 g. Moskva, Izd-vo Akad. nauk SSSR, 1963. 178 p. (MIRA 16:6)

1. Akademiya nauk SSSR. Astronomicheskiy sovet. Komissiya priborostroyeniya.
(Astronomical instruments)

AMBARTSUMYAN, V.A., akademik; ASRATYAN, E.A.; BOGOLYUBOV, N.N., akademik; VINOGRADOV, A.P., akademik; GINETSINSKIY, A.G.; KNUNYANTS, I.L., akademik; KOCHETKOV, N.K.; KURSANOV, A.L., akademik; MEL'NIKOV, O.A.; NESMEYANOV, A.N., akademik; NESMEYANOV, An.N., doktor khim. nauk; OBREIMOV, I.V., akademik; POLIVANOV, M.K., kand.fiz.-mat.nauk; REUTOV, O.A.; RYZHKOV, V.L.; SPITSIN, V.I., akademik; TAMM, I.Ye., akademik; FESENKOV, V.G., akademik; FOK, V.A., akademik; SHCHERBAKOV, D.I., akademik; FRANK, I.M.; FRANK, G.M.; KHOKHLOV, A.S., doktor khim. nauk; SHEMYAKIN, M.M., akademik; ENGEL'GARDT, V.A., akademik; SHAPOSHNIKOV, V.N., akademik; BOYARSKIY, V.A.; LIKHTENSHTEYN, Ye.S.; VYAZEMTSEVA, V.N., red.izd-va; KLYAYS, Ye.M., red.izd-va; TARASENKO, V.M., red.izd-va; POLYAKOVA, T.V., tekhn. red.

[As seen by a scientis: From the Earth to galaxies, To the atomic nucleus, From the atom to the molecule, From the molecule to the organism] Glazami uchenogo: Ot Zemli do galaktik, K iadru atoma domolekuly, Ot molekuly do organizma. Moskva, Izd-vo AN SSSR, 1963. 736 p. (MIRA 16:12)

1. Akademiya nauk SSSR. 2. Chlen-korrespondent AN SSSR (for Asratyan, Ginetsinskiy, Kochetkov, Mel'nikov, Reutov, Ryzhkov, Frank, I.M., Frank, G.M.)
(Astronomy) (Nuclear physics) (Chemistry) (Biology)

BENYAKOVSKIY, M.A.; MEL'NIKOV, O.A.; CHUKHLOVA, L.N.; GLUKHOV, S.K.

Improving the surface quality of hot-rolled strips. Metallurg 8 no.5:28-29 My '63. (MIRA 16:7)

1. Cherepovetskiy metallurgicheskiy zavod.
(Rolling(Metalwork)--Quality control)

MEL'NIKOV, O.A.; ZHURAVLEV, S.S.

Photographic spectrophotometry of H and K Ca II lines in the center of the disc and mean values for the entire disc (total solar flux). Vest. LGU. 18 no.19:135-141 '63.
(MIRA 16:11)

MEL'NIKOV, O.A.; KUPREVICH, N.F.; ZHUKOVA, L.N.

Photoelectric photometry of the K and H CaII lines in the spectra of the total solar disk and the central disk area. Izv.GAO 23 no.2:72-75 '63. (MIRA 16:12)

MEL'NIKOV, O.A.; KUPREVICH, N.F.; ZHUKOVA, L.N.; POPOV, V.S.

Determination of the spectrophotometric gradients of A-type stars by the photoelectric method. Izv.GAO 23 no.2:66-71 '63. (MIRA 16:12)

ACCESSION NR: AT4012203 S/2797/63/023/002/0072/0075

AUTHOR: Mel'nikov, O.A.; Kuprevich, N.F.; Zhukova, L.N.

TITLE: Photoelectric photometry of the K and H CaII lines in the spectra of the full solar disk and its central region

SOURCE: Pulkovo. Astron. observ. Izvestiya, v. 23, no. 2(173), 1963, 72-75

TOPIC TAGS: astronomy, photoelectric photometry, photometry, solar disk, solar spectrum, solar telescope

ABSTRACT: In order to study the solar disk, an automatic diffraction spectrograph was mounted on a horizontal solar telescope. The surface of the diffraction grating was 80 x 70 mm, 600 lines per mm. For the collimator, a camera was used with a 200 mm spherical mirror and for recording, a polished oscillograph. The speed of the movie film was 20 mm/sec. The three successive recordings which were made were all similar. Theoretical line profiles were computed, using precise formulas. In the central parts of the K line, agreement was found for the number of atoms from 1.0 to 2.5 · 10^{18} per gram of solar matter. Central residual intensities, in particular of the K line, indicate that E≈0.022 is independent of the calcium atom abundance. A comparison of the K CaII line pro-

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file in the total flux with the center part of the solar disk indicates that lines averaged over the disk are broader in the wings and narrower in the central part of the disk. This corresponds to the profile variations of a given line in the entire solar disk. This problem is of great importance in the comparison of line profiles in the sun and G2V type stars. Orig. art. has: 5 figures, 1 table and 2 formulas.

ASSOCIATION: Glavnaya astronomicheskaya observatoriya AN SSSR, Pulkovo (Main Astronomical Observatory AN SSSR)

SUBMITTED: 00	DATE ACQ: 27Feb64	ENCL: 00
SUB CODE: AA	NO REF SOV: 002	OTHER: 003

Card 2/2

VYAZANITSYN, V.P. [deceased]; GNEVYSHEV, M.N.; DOBROVOL'SKIY, O.V.; KRAT, V.A.; MARKOV, A.V.; MOLCHANOV, A.P.; SCHOLEV, V.M.; SHARONOV, V.V.; DEYCH, A.N., red.; MEL'NIKOV, O.A., red.; KULIKOV, G.S., red.

[Course of astrophysics and stellar astronomy] Kurs astrofiziki i zvezdnoi astronomii. Moskva, Izd-vo "Nauka." Vol.3. 1964. 375 p. (MIRA 17:5)

MEL'NIKOV, G.A.; ZHIRAVLEV, S.S.; ASLANOV, I.A.; KULI-ZADE, D.M.; SALMAN-ZADE, F.Kh.

Solar limb effect in the shifts and intensities of Fraunhofer lines. Uch.zap. LGU no.326[27-43 '64. (MIRA 18:5)

L 24413-65 EWT(l)/EWT(m)/EWG(v)/EEC-4/EEC(t)/EWP(t)/EWP(b) Pe-5/Pq-4
IJP(c) RDW/JD/GW

ACCESSION NR: AT5001340 S/2703/64/000/323/0094/0106

AUTHOR: Mel'nikov, O. A.; Zhuravlev, S. S.

TITLE: Spectrophotometric study of the lines of the rare-earth elements in the spectrum of the solar disk

SOURCE: Leningrad. Universitet. Uchenyye zapiski, no. 323, 1964. Seriya matematicheskikh nauk, no. 37. Trudy astronomicheskoy observatorii, v. 20, 94-106

TOPIC TAGS: rareearth element, solar spectrum, Fraunhofer line, cerium, praseodymium, europium, gadolinium, neodymium, lutecium, samarium

ABSTRACT: The authors have investigated about 50 Fraunhofer lines of ionized cerium, praseodymium, neodymium, samarium, europium, lutecium and gadolinium. The observational data were obtained in 1959-1960 using the solar telescope of the Astronomicheskaya observatoriya Leningradskogo universiteta (Astronomical Observatory, Leningrad University) in combination with an autocollimating diffraction spectrograph having a new high-quality grating with a second-order line dispersion of about 1 A/mm. An investigation was made for a point on the solar disk with cos $\theta = \mu = 1.0$ for the center and 0.5, 0.2 and 0.015 for the limb. The diameter of the image of the solar disk was 204 mm. The spectra of the four regions of the solar disk were obtained on a single photographic plate. This made it possible to

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obtain the values of the equivalent widths and central residual intensities of the Fraunhofer lines of the rare-earth elements. It was found that the solar intensities of the lines of the rare-earth elements agree better with laboratory intensities than with the theoretical values. The same result was found earlier for the lines of iron and therefore the rare-earth elements of the solar atmosphere are not exceptional in this respect. The generalization can be made that the behavior of the lines (for the most part weak) of the rare-earth elements in the solar spectrum is not anomalous and fully corresponds to the behavior of the weak lines of metals. This result is particularly interesting due to the great difference in the structure of the terms of the rare-earth elements and metals. It suggests that macroscopic processes in the solar atmosphere play the principal role in line formation. Orig. art. has: 1 formula, 9 figures and 3 tables.

ASSOCIATION: Astronomicheskaya observatoriya Leningradskogo universiteta (Astronomical observatory, Leningrad University)

SUBMITTED: 00 ENCL: 00 SUB CODE: AA, IC

NO REF SOV: 005 OTHER: 005

Card 2/2

L 40302-65 EWT(1)/EWG(v)/EEC-4/EEC(t) Pe-5/Pq-4 GW

ACCESSION NR: AR5008865 S/0269/65/000/003/0045/0045

30
B

SOURCE: Ref. zh. Astronomiya. Otdel'nyy vypusk, Abs. 3.51.343

AUTHOR: Mel'nikov, O. A.; Zhuravlev, S. S.; Aslanov, I. A.; Kuliyev, D. M.; Salman-zade, R. Kh.

TITLE: Catalogue of shifts, residual central intensities and equivalent widths of selected Fraunhofer lines

CITED SOURCE: Tr. Shemakhinsk. astrofiz. observ., v. 3, 1964, 63-102

TOPIC TAGS: sun, Fraunhofer line, spectral line, spectral line shift, residual central intensity, equivalent width

TRANSLATION: An attempt has been made to detect possible changes of differential shifts, residual central intensities and equivalent widths of selected Fraunhofer lines in the spectra of the limb of the solar disk (at the pole and equator) for different positions of the polaroid. The observational data were obtained in 1961-1962 using the solar telescope of the Astronomicheskaya observatoriya Leningradskogo gosudarstvennogo universiteta (Astronomical Observatory of Leningrad State University). By the use of a special optical attachment it was possible to obtain

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simultaneous spectrograms of the eastern and western limbs of the solar disk and spectrograms of the north and south poles. The observations were made with the polaroid in six positions, each 30° ($\alpha = 0°$, 30°, 60°, 90°, 120°, 150°). Line shifts relative to the selected reference lines were measured on the Soviet-produced IZA-2 comparator. The selected reference lines were λ 5434.5 FeI, λ 5123.7 FeI and λ 4602.9 FeI. By forming the differences of the line shifts of the limb spectra (E-W and N-S) and the center of the solar disk the authors obtained shifts characterizing the limb effect. The equivalent widths and residual central intensities were obtained in the usual way by spectrophotometric techniques. Measurements of the shifts of the strong lines (D_1 and D_2 NaI, b MgI and Hα) were made from the traces. The limb effect is also expressed in the residual central intensities and equivalent widths. It is demonstrated that: 1) Line shifts at the limb change for different angles of rotation of the polaroid. 2) For all practical purposes line shifts at the disk limb ($\sin\theta \approx 0.98$) are independent of the intensities of the investigated lines. 3) The equivalent widths and residual central intensities also correlate in the case of observation through an analyzer. 4) Line shifts at the disk limb are dependent on sensitivity to the Zeeman effect, pressure and superfine structure. It was found that the shifts and residual central intensities have an asymmetrical distribution over the disk, that is, center - equator data do no coincide with center - pole data. The catalogue gives the

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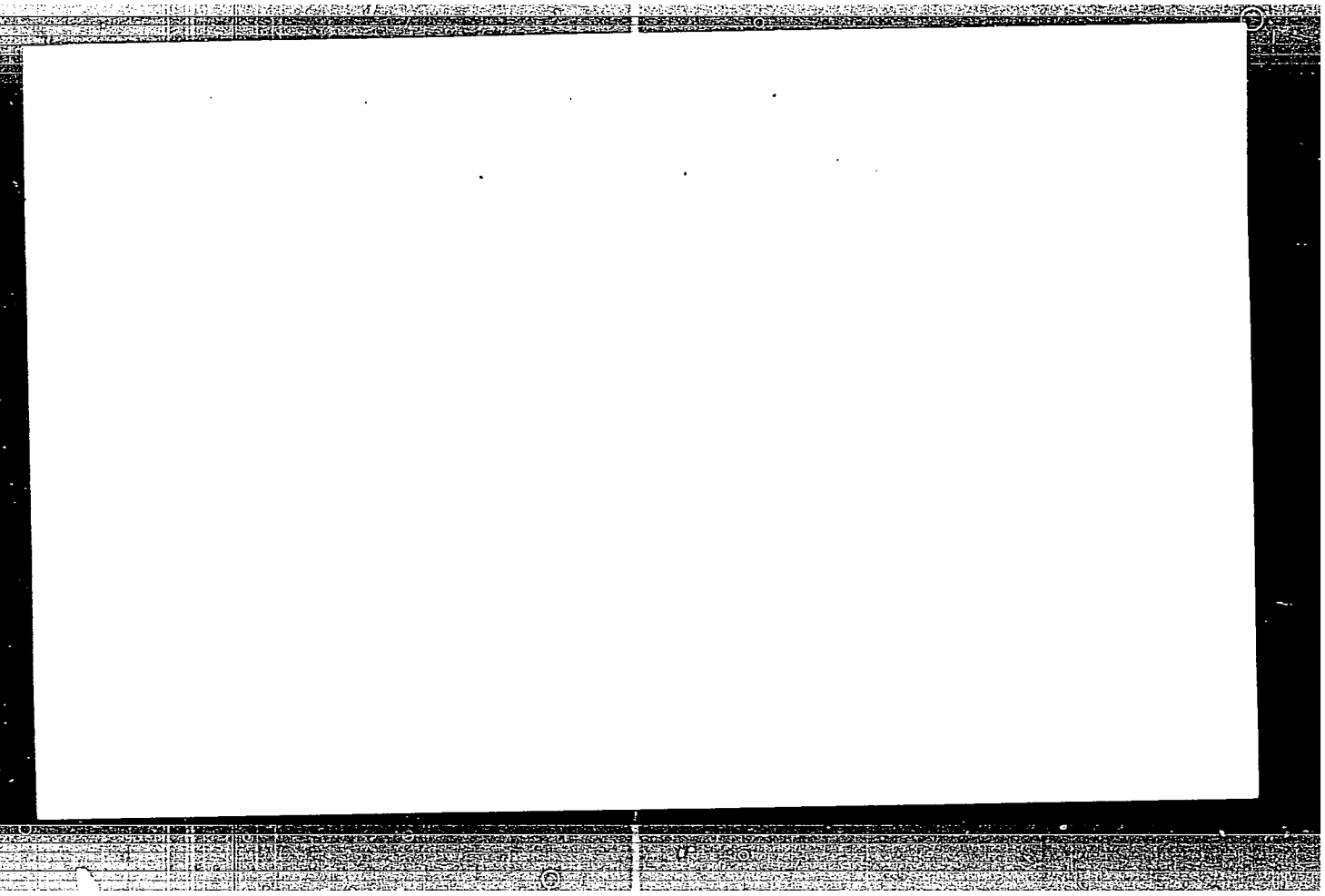
wavelengths of the measured lines, equivalent widths W, shifts $\Delta\lambda$ and residual central intensities r_o. Also given are the equivalent widths in units of equivalent ergs. Bibliography of 17 items. D. Kuli-zade.

SUB CODE: AA ENCL: 00

Card 3/3

MEINIKOV, O.A.

Gravitational [illegible] of the plasma [illegible] in the center of the solar disk. Izv. GAO [illegible]. [illegible]



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